CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. 99-009

AMENDMENT OF SITE CLEANUP REQUIREMENTS (ORDER NO. 96-130)

CHEVRON U. S. A. PRODUCTS COMPANY
R&B PARTNERSHIP
BAY CITIES OIL MARKETERS INC.

for the property located at

477 OIL COMPANY ROAD
Napa, Napa County, California

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Board), finds that:

1. **Regional Board Orders**: The Board adopted site cleanup requirements Order No. 96-130 (Order), for Chevron U. S. A. Products Company, Bay Cities Oil Marketers Inc., and R&B Partnership (hereinafter "the dischargers"), 477 Oil Company Road, Napa California on September 18, 1996. The Order specified tasks and set forth deadlines for investigation and remediation of the former bulk petroleum and dispensing facility.

2. **Site Ownership History:**

   County assessor's records show the Site was acquired on May 1, 1913 by Standard Oil of California. The following is a list of past owners and their dates of ownership:

Standard Oil of California	- May 1, 1913 to February 1, 1977
Chevron USA	- February 1, 1977 to March 31, 1980
North Bay Oil Company	- March 31, 1980 to March 8, 1984
Schutzky Distributors, Inc.	- March 8, 1984, to July 1986
R&B Partnership	- July 1986 to present

   Bay Cities Oil Marketers operated the site until 1987, when the facility operation ceased. (associated with Randall Thomas and Brenda Glenn as a corporate nominal purchaser)

   The petroleum bulk storage and dispensing facility has been in operation since Standard Oil of California built the facility, sometime after the year 1913.

3. The property at 477 Oil Company Road (hereinafter "the site") has undergone a number of innovative remediation efforts commencing in 1986. Finding 5 of this order provides a summary of those remedial activities. Figure 1 shows the location of the site and is made part of this order.

4. The site is located within the Napa Flood Control Project Area. The Napa County Flood Control and Water Conservation District is scheduled to acquire the property by November of 2000. The site will be part of the Second Phase of the Napa River Construction Project. Construction at the site vicinity is scheduled to begin in 2003.

5. Cambria Environmental Technology Inc., has recently made an evaluation of the remedial technologies utilized at the site to date. The evaluation indicates that several of the remedial technologies failed to remove pollutants satisfactorily from soil and groundwater.

   Recent groundwater monitoring for the second quarter of 1998, indicate the presence of petroleum hydrocarbons at concentration levels as high as 58,000 parts per billion (ppb), and Benzene at 6,300 ppb in groundwater monitoring wells No. 2, and No. 8, respectively. In addition, separate phase hydrocarbons and hydrocarbon sheen were observed in seven groundwater monitoring wells at the site.

6. **Reason For Amendment**: The objectives for amending the requirements of Site Cleanup Order No. 96-130 are to:

   a. Revise the current deadlines and modify the tasks, and

   b. Bring the site into compliance with provisions of the current Order.

7. **History Of Remedial Activities At The Site:**

   a. **1988 - 1990 Ground Water Extraction**: In 1988, a ground water extraction system was installed that operated from December 6, 1988 through August 21, 1990. A total of 2.1 million gallons of groundwater was extracted, removing only 20 gallons of total petroleum hydrocarbons (TPH). This corresponds to a removal rate of one gallon of TPH per 105,000 gallons of water. The system was shut down due to the inability of the system to maintain hydraulic control of ground water over the influence of the adjacent Napa River. In addition, the system was difficult to maintain due to frequent biofouling caused by iron bacteria.

   b. **1991 Soil Vapor Extraction System Operation:** A soil vapor extraction (SVE) system was installed and operated from January 10, 1991 through

May 13, 1991. The system consisted of a thermal oxidizer connected to several site wells. The initial TPH concentration measured at the treatment system inlet was 19,200 parts per million by volume (ppmv) at a flow rate of about 150 standard cubic feet per minute (scfm). This concentration decreased by an order of magnitude after only eight hours of operation to 8,700 ppmv. The concentration after four months of operation was only 390 ppmv. These concentrations and flow rates correspond to an initial TPH removal rate of 40.45 pounds per hour (pph), 4.8 pph after eight hours, and 0.82 pph after four months. During the four month period, the system removed about 16,800 pounds of TPH (about 2,800 gallons) based on laboratory TPH analysis. The SVE system was shut down because TPH concentrations decreased to a level in which it was not economically feasible to operate the system. Further, the low TPH concentrations made it difficult to meet the destruction efficiencies required by the Bay Area Air Quality Management District (BAAQMD).

c. **Hydrocarbon Bailing:** In September 1993, a five day separate phase hydrocarbon bailing test was performed by DELTA consultants. Approximately 98 ounces of separate phase hydrocarbons were bailed on the first day of the test. The volumes bailed on days 2, 3, 4 and 5 were 4.0, 2.5, 4.0 and 7.0 ounces respectively. Of the hydrocarbons removed, 93% came from well MW-4.

d. **Bioventing:** In March 1997, Geraghty & Miller of Richmond, California (G&M) conducted a closed loop bioventing test at the site. G&M concluded that bioventing was effective at accelerating natural biodegradation of hydrocarbons in the vadose zone, but Bioventing would have limited effectiveness for ground water. G&M initially injected air at 60 scfm and finished the test at 80 scfm. The higher injection rates were attributed to partial dehydrating of soil during the test. Oxygen concentrations in soil vapor increased from 17.5% at the beginning of the test to 19.5% at the end of two months. Hydrocarbon vapor concentrations decreased from an initial 900 ppmv to 550 ppmv. G&M also noted that separate-phase hydrocarbons disappeared in wells used for the Bioventing test.

e. **Vacuum-Enhanced Product Recovery:** In June 1997, the blower previously used for the Bioventing test was reversed in an attempt to enhance separate phase hydrocarbon recovery. No measurable increase in separate phase hydrocarbon recovery was detected.

f. Hydrogen Peroxide Injection:

In November 1997, Terra Vac of San Leandro, California started injecting hydrogen peroxide on a monthly basis in wells MW-4, MW-5, RW-1 and RW-4 to oxidize both separate and aqueous phase hydrocarbons. Over a four month period, Terra Vac injected 220 gallons of 35% hydrogen peroxide diluted to about 10% prior to injection. After the injection of the hydrogen peroxide TPH as gasoline (TPHg), TPH as diesel (TPH_d) and benzene concentrations in wells MW-4 and MW-5 decreased by up to several orders of magnitude. In a July 1998 pilot test, Terra Vac monitored temperature in nearby wells. Elevated temperatures were measured in wells MW-14 and MW-15, indicating a radius of influence for hydrogen peroxide of at least 15 ft. TPHg, TPH_d and benzene concentrations also decreased in monitoring wells MW-14 and MW-15 during the hydrogen peroxide injection period, supporting the 15 ft radius of influence. No measurable separate-phase hydrocarbons have been detected since peroxidation began.

8. **CEQA:** This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.

9. **Notification:** The Board has notified the dischargers and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.

IT IS THEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that, Tasks B1, B2, B3, and B4 of Order No. 96-130 shall be amended as follows:

A. **TASK B1: SUMMARY REPORT OF SITE INVESTIGATION ACTIVITIES:**

Compliance Date: May 1, 1999

Submit a technical report acceptable to the Executive Officer documenting completion of all necessary tasks identified in the in Board's Site Cleanup Requirements Order No. 96-130, Task 3a. The report must include results of all geological, hydrogeological, geotechnical, and geochemical investigations performed at the site to date, but not limited to: (1) results of soil and groundwater sampling, and monitoring events on or about 1986; (2) an evaluation of the potential impact to the Napa River, including an analysis of the elevation of the groundwater (as compared to mean sea level), the influence of tidal fluctuations and the permeability of site soils, and (3) a map to show distribution

of petroleum hydrocarbons and or other pollutants present in soil and groundwater (isoconcentration map) at the site

B. **TASK B2: EVALUATION OF INTERIM REMEDIAL ACTIONS:**

Compliance Date: May 1, 1999

Submit a technical report acceptable to the Executive Officer documenting completion of Task B2 & Task B2(a) of Order No. 96-130.

C. **TASK B3: PROPOSED FINAL REMEDIAL ACTION AND CLEANUP STANDARDS:**

Compliance Date: July 1, 1999

Submit a Report proposing final remedial actions and cleanup schedules acceptable to the Executive Officer. The proposal should include pollutant source removal, and should specify a time schedule for implementation. The proposal shall include, but be not limited to the following:

a. Risk assessment for current and post-cleanup exposures at the discharger's option; If the dischargers do not wish to be burdened by any consequential risk management and monitoring requirements, they are free to choose and implement the Tier-0 cleanup standards for soil and groundwater at the Site. The Tier-0 cleanup standards are shown in the following Table (Reference: The Draft Revised Site Cleanup Requirements for the San Francisco International Airport):

Table-1

Hydrocarbon Constituents	Soil (mg/kg)	Groundwater (mg/l)
TPH-g	100	0.6
TPH-j,d	200	0.2
BTEX (total)	5	0.1
Benzene	0.5	.02
VOCs	1	CA Primary MCL
SVOCs (total)	10	CA Primary MCL

Note: Background concentration must be achieved for soils contaminated with metals.

b. Feasibility study evaluating alternative final remedial actions, one alternative should include cooperative cleanup with neighboring parities;

c. Recommended final remedial actions and cleanup standards, and time schedule for task implementation.

Items b and c should include projections of cost, effectiveness, benefits, and impact on public health, welfare, and environment of each alternative action.

Item b and c should be consistent with the State Board Resolution No. 92-49 as amended ("Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304").

D. **TASK B4: REPORT SUMMARIZING COMPLETION OF CORRECTIVE ACTION**

Compliance Date: November 1, 2001

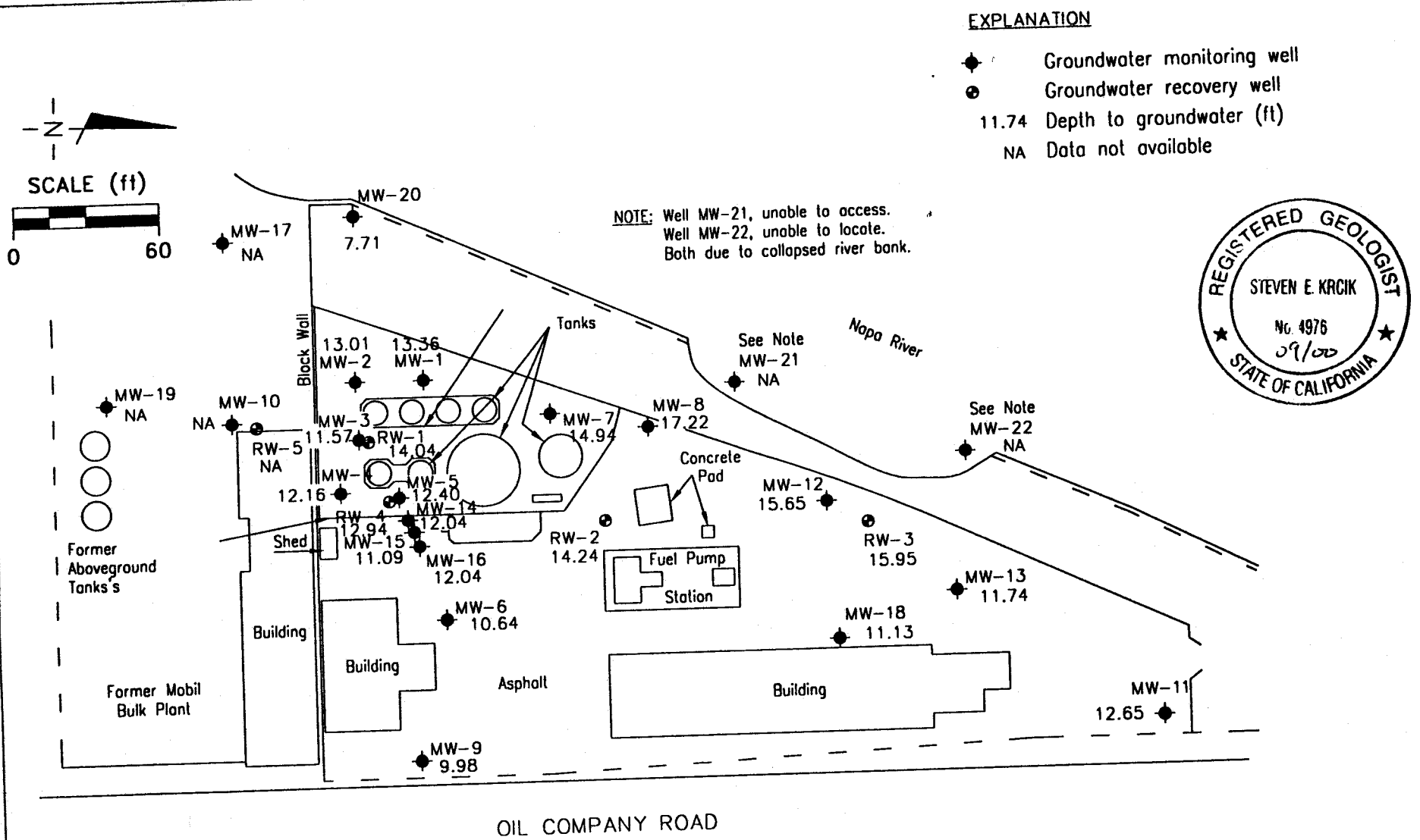
Submit a technical report acceptable to the Executive Officer documenting completion of all soil and groundwater remedial activities at the Site. The report must indicate that source(s) of pollution has been removed and cleanup levels for soil and groundwater as required in TASK B3 of this Order have been achieved. Further, the report must also document that soil and groundwater at the Site will no longer pose a threat to human health and the environment.

FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY

Loretta K. Barsamian
Executive Officer

March 19, 1999
Date:

Attachment: Figure 1-Site Map



REGISTERED GEOLOGIST
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3/1/00
STATE OF CALIFORNIA

Ref. 206227.dwg
Basemap from Gettler-Ryan, Inc.

PREPARED BY
RRM
engineering contracting firm

Former Chevron Facility 20-6227/North Bay Oil
477 Oil Company Road
Napa, California

DEPTH TO GROUNDWATER MAP, NOVEMBER 24, 1998

FIGURE: 1
PROJECT: DAC04